WHAT IS CLAIMED IS:

1. A method for determining the orientation of a digital image, comprising the steps of:

a) employing a semantic object detection method to detect the presence and orientation of a semantic object;

b) employing a scene layout detection method to detect the orientation of a scene layout; and

c) employing an arbitration method to produce an estimate of the image orientation from the orientation of the detected semantic object and the detected orientation of the scene layout.

2. The method claimed in claim 1, wherein the step of employing a semantic object detection method comprises employing a plurality of semantic object detectors to detect a plurality of semantic objects and their orientations.

3. The method claimed in claim 2, wherein the semantic objects are selected from the group of semantic objects comprising: a human face, a human figure, clear blue sky, lawn grass, a snow field, body of open water, tree, a sign, and written text.

4. The method claimed in claim 1, wherein the scene layout detection method comprises the steps of:

a) dividing the digital image into non-overlapping image blocks;

b) computing at least one statistic for each image block;

c) forming a feature vector by concatenating the statistics computed from the image blocks; and

d) using a trained classifier to produce an estimate of the image orientation.

5. The method claimed in claim 4, wherein the statistic is a color moment.

6. The method claimed in claim 1, wherein the scene layout detection method comprises the steps of:

a) extracting straight lines from the digital image;

b) computing a point of convergence (or vanishing point) from a subset of the extracted straight lines; and

c) producing an estimate of the image orientation according to the vanishing point.

7. The method claimed in claim 1, wherein the arbitration method employs a Bayes Net.

8. The method claimed in claim 1, wherein the arbitration method employs a decision tree.

9. The method claimed in claim 1, further comprising the step of: rotating the digital image to re-orient the digital image in an upright direction.

10. A computer program product for performing the method of claim 1.

11. A system for processing a digital color image, comprising:

a) a semantic object detector to determine the presence and orientation of a semantic object;

b) a scene layout detector to determine the orientation of a scene layout;

c) an arbitrator responsive to the orientation of the semantic object and the orientation of the scene layout to produce an estimate of the image orientation; and

(d) an image rotator to re-orient the digital image in the upright direction.

12. The system claimed in claim 11, wherein the step of employing a semantic object detection method comprises employing a plurality of semantic object detectors to detect a plurality of semantic objects and their orientations.

13. The system claimed in claim 12, wherein the semantic objects are selected from the group of semantic objects comprising: a human face, a human figure, clear blue sky, lawn grass, a snow field, body of open water, tree, a sign, and written text.

14. The system claimed in claim 11, wherein the scene layout detector comprises:

a) means for dividing the digital image into non-overlapping image block;

b) means for computing at least one statistic for each image block;

c) means for forming a feature vector by concatenating the statistics computed from the image blocks; and

d) means for using a trained classifier to produce an estimate of the image orientation.

15. The system claimed in claim 14, wherein the statistic is a color moment.

16. The system claimed in claim 11, wherein the scene layout detector, comprises:

a) means for extracting straight lines from the digital image;

b) means for computing a point of convergence (or vanishing point) from a subset of the extracted straight lines; and

c) means for producing an estimate of the image orientation according to the vanishing point.

17. The system claimed in claim 11, wherein the arbitrator is a Bayes Net.

18. The system claimed in claim 11, wherein the arbitrator is a decision tree.